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THE INFLUENCE OF FOOD ON CIVILIZATION.

FROM time immemorial the contrast has been recognized between races which obtain their food by utilizing the forces of nature and those which depend for their subsistence on skill in availing themselves of irregular and casual chances. Those who live by agriculture on the one hand, and those on the other who live by hunting, fishing, and so forth, have become so diverse in their nature that a sentiment even of hostility has arisen between the two classes as between races differing in characteristics other than those which seem directly dependent on alimentation. The reason is not far to seek. That a part of the observed difference in this case (this comparatively rough illustration of the influence of food on human progress) depends on the nature of the food used and the manner of life of those using it, may be admitted. But the most important part of the difference between races which depend on agriculture and pasture, and those which live by hunting and fishing, arises from differences in the way in which, of necessity, they view nature. To one set of men all the circumstances are such as to suggest the absence of law and order in the workings of nature. They obtain their food precariously; at one time they may have more than they want, at another they may be in danger of starving; they can recognize no law governing the order of events on which their lives depend,— or, which is the same thing, the means by which they live. On the other hand, those who depend on agriculture and pasture find early that there are laws on which their well-being depends; that by the recognition of such laws, and obedience to them when recognized, nature may be made the servant of man, not a mere chance benefactress. They learn that their fortunes lie in great part in their own hands. Observation and experiment are not only suggested by the very nature of agricultural and pastoral operations: these are themselves experiments, and experiments only to be made successfully by observant and laborious workers. There must of necessity arise a marked difference in the turn of mind, and in the tone of character, of races thus patiently and observantly obeying and at the same time guiding nature, and the disposition of men trusting to the chances and caprices of the huntsman's or the fisher's life.

As every nation that has ever become civilized has passed beyond the condition in which men depend on hunting or fishing for subsistence, it is unnecessary to dwell further on effects which in point of fact have not to be considered in comparing different kinds and degrees of civilization. They show us, however, at the outset, how important must be the influence of food, and of the manner of obtaining food, on the fortunes of a race, when we see that whether a people will become civilized or not depends thus on the question whether they advance or not to the state in which men no longer depend on an irregular and capricious supply of food, but on regular processes, partly the result of their own acts, partly the steady work of nature.*

In considering the influence of food on civilization it has been customary, until of late, to start from Liebig's chemical division of food into two classes,—the heat-producing and the tissue-forming,—a division first pointed out in reality by Magendie. It was held that the temperature of the body is maintained by substances which contain no nitrogen, or little, while the wear and tear of the body is repaired by food in which there is an abundance of nitrogen. Liebig maintained that animals cannot possibly form their tissues out of anything but the proteids originally generated by plants. He was not aware that the foods which had been commonly regarded as essentially heat-producing are tissue-foods too. What was essentially right in his doctrine was that animal tissues cannot be formed out of saccharine compounds, as starch and sugar, unless these have been changed into fat. He also was right in regarding the use of far the greater portion of carbonaceous food as that of fuel for the animal fires,—that is, that it served to maintain the animal heat. He assumed, says Dr. Carpenter, "that the only purpose served by the oxidation" (or, as it were, "burning" of the food within the body, by combination with oxygen taken in through the lungs), "was the production of heat; affirming that all the mechanical force exerted by the animal body is the product of the transformation of living muscular fibre into dead,—the vital force which was expended by the living tissue being expended in the shape of motion. The oxidation of the dead material he regarded as only a consequence of its loss of power to resist chemical agencies, and as a means of its removal,—serving at the same time as an additional source of heat. And rightly judging that this chemical metamorphosis should show itself by the increased excretion of urea in the urine (the kidneys furnishing the channel through which most of the nitrogenous waste is carried out of the body), he appealed, in support of his doctrine, to what he supposed to be the fact of such increase, and its proportion to the amount of work done."

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* Buckle, indeed, goes so far as to attribute not only the origin of civilization, but of men's religious ideas, to the nature of their food-supply. Singularly enough, he does not seem himself to have observed how directly he has traced the rival doctrines of chance and necessity, free-will and predestination, to the kind of food men use; for, once engaged with the religious question, he does not turn back to the subject by which it was introduced. But it is immediately after he has discussed the effect of a steady supply of food, depending on the stability of the laws of nature, that he goes on to show how, as a necessary consequence, certain religious doctrines would arise. The irregularity of the hunter's or the fisher's supply would prevent him from suspecting anything like method in the arrangements of nature, nor could his mind even conceive the existence of those general principles which govern the order of events. . . . But, as the observations of those who live by agriculture and pasture accumulate, "and as their experience extends over a wider surface, they meet with uniformities that they had never suspected to exist, and the discovery of which weakens that doctrine of chance with which they had originally set out. . . . Thus it is that, in the ordinary march of society, an increasing perception of the regularity of nature destroys the doctrine of chance, and replaces it by that of necessary connection. And it is, I think, highly probable that out of these two doctrines of chance and necessity, there have respectively arisen the subsequent dogmas of free-will and predestination." Strange, if in the mode of seeking food should be found the origin of the two lines of thought, along one or other of which men have been led from time immemorial to the choice of their religious views.

The importance of correct views on this point will be seen when we consider that, if the views of Liebig were sound, the amount of work done by men and animals consuming a small allowance of nitrogenous food would necessarily be small. The work done by a nation,—that work by which at once its progress toward civilization and the value of the advance it had already made is to be measured,—would be in proportion to the amount of nitrogenous food consumed; and the fortunes of a nation would depend largely on the accessibility of large supplies of such food, and its resulting cheapness.

It appears certain, from experiments recently made, that the views of Liebig on this point were not sound. The production of muscular energy is no longer regarded as an expenditure of the vital force of the muscle substance itself, and therefore requiring azotized food for its reparation, but is considered to be due, as Mayer long since pointed out, "to the oxidation of a portion of the non-nitrogenous or respiratory food, the muscular apparatus being the mere instrument by which that oxidation is made to produce motion in place of heat." Experiments made by Joule on animals and by the late Dr. Edward Smith on man (on himself as the most convenient "subject") show that the production of force is not due to the oxidation of the nitrogenized element of the living tissues, but chiefly to the oxidation of the hydro-carbons. Dr. Flint, Professor of Physiology at the Bellevue Hospital, New York, points out (in his *Experiments and Reflections Upon Animal Heat*) that muscular force results from the transformation of the heat produced in the organism after the appropriation of a quantity of caloric sufficient for the maintenance of the constant animal temperature. "The oxidation of the elements of carbon and hydrogen is a much more important factor of calorification than that of nitrogen, for it is certain that the calorific value of the oxidation of the first two, and the quantity of heat thus produced, are much more considerable than in the case of the oxidation of the nitrogen." It is probable, Dr. Flint considers, that a production of caloric is always going on in the living organism, even in the absence of any alimentation. According to his experiments, the heat thus produced results from the oxidation of the hydrogen forming water with the oxygen inspired into the lungs.

The carbohydrates forming so important a part of human food are found in fruits and vegetables, not in animal tissues, or very little. It is otherwise with the various mineral salts necessary for complete nutrition. These are found alike in vegetable and in animal food.

These considerations tend somewhat to modify the views which had been formed respecting the general influence of food on the progress of civilization. It has been assumed that where either the supply of heat-giving food is abundant, or owing to the nature of the climate, less food of the heat-giving kind is necessary, the population will increase more rapidly, wages be low, and the condition of the laboring classes will be depressed. It is, however, rather the nature of the food employed, and the way in which it is obtained, that are in question, than any difference in the heat-producing capacity of the food, or in the requirements of the inhabitants. For wherever work has to be done, there the food which had been thought useful only for its heat-sustaining qualities must be used to support and repair the muscular energies. The rice which had been thought sufficient barely to sustain life by sustaining heat, in parts of India is found to sustain the working energies also. The Bengalee laborers, for instance, on our Indian railways, work exceedingly well for their size, though they live almost entirely on rice, with a little ghee (butter), or occasionally a small bit of fish. The low wages, and the superabundance of population in India, are not then in reality dependent, as Buckle supposed, on the use of non-nitrogenous food *per se*, but rather on the use of a cereal of great cheapness and abundance, yielding to the laborer a return of from fifty to ninety per cent. In Egypt, again, where dates take the place of the rice of India, and dhourra peas, beans, lentils, and other cheap articles of diet are in use, we find similar results, early and rapid progress, a still more rapid growth of population, exceedingly low wages, and a wide and ever widening disparity among different classes. Whatever discrepancies, as Buckle remarks, may exist between the accounts given by Herodotus and Diodorus Siculus respecting the condition of ancient Egypt, both agreed respecting the rapid increase of the people and the servile condition into which they early fell. "Indeed," as he justly adds, "the mere appearance of those large and costly buildings, which are still standing, is a proof of the state of the nation that erected them. To raise structures so stupendous, and yet so useless, there must have been tyranny on the part of the rulers and slavery on the part of the people. No wealth, however great, no expenditure, however lavish, could meet the expense which would have been incurred, if they had been the work of free men, who received for their labor a fair and honest reward." Where food is very readily obtained in sufficient quantity to supply the wants of the working-classes, there not only are wages low, but population increases with undue rapidity, and, as an inevitable result, the powerful and wealthy squander the lives of the people with recklessness incredible in countries where the balance is better held between supply and demand. Thus only can we understand how, in any nation not absolutely subdued by an invading force, there should have been such a reckless expenditure of life as occurred in Ancient Egypt, where the old Red Sea canal cost, we are told, the lives of a hundred and twenty thousand Egyptians, whilst thrice that number—the entire population of such a city as Chicago or St. Louis—were employed for twenty years to build the great pyramid of Cheops.*

In one race and in one only, in modern times, outside of Asia, Africa, and South America (that is, belonging to those nations of Europe and America which we associate with the progress of modern civilization), have we had an opportunity of witnessing the effects of the use of a very cheap national food,—the Irish. It has been remarked of the potato, that, until the appearance of the potato disease, it was cheaper than any equally wholesome and nutritious article of food. Adam Smith states in his "Wealth of Nations," Book I., chapter xi., that land sown with potatoes will support three times as many persons as if sown with wheat; but McCulloch is probably nearer the mark in saying it will support twice as many. As a natural result, in a country where people are thus (or rather were thus) cheaply fed, wages are lower and the natural increase of the population will be greater than where the national food is dearer. Until the potato disease appeared, the population of Ireland was increasing at the rate of three per cent. per annum; the increase in England during the past year, counting all who have emigrated, was barely half this. It is to this rapid increase of population in Ireland in past times that the difference in the distribution of riches in Ireland and in England has been mainly due. The labor market in Ireland was overstocked. The people were thus compelled to work for such low wages as to be debarred, as Buckle remarks, "not only from the comforts, but from the common decencies of civilized life." This evil condition, he adds, was the natural result of that cheap and abundant food which encouraged the people to so rapid an increase that the labor market was constantly gorged.

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* Τριάκοντα μὲν γὰρ καὶ ἓξ μυριάδες ἀνδρῶν, says Diodorus Siculus, ὥς φασι, ταῖς τῶν ἔργων λειτουργίαις προσήδρευσαν, τὸ δε πᾶν κατασκεύασμα τέλος ἔσχε μόγις ἐτῶν εἴκοσι διελθόντων. Bibliothec. Hist., Book I., chap. lxiii., vol. 1, p. 188. It is only by taking into account this lavish expenditure of labor and of life that we can at all understand the building of such edifices as the pyramids in any ruler's lifetime, or in less, indeed, than a great number of generations.

In the New World we must revert to ancient times for evidence respecting this important law. In the United States and Canada, as will presently be shown, the operation of the law is at present masked by other causes. It is, indeed, only where the law has had time to operate, almost without check, on a population occupying a large but little changing area, that its full effects can be recognized. In some of the older nations of the American continent, this appears to have happened in such sort as to give at least as much prominence to the effects due to the law as among Asiatic and African races. Materials still exist by which we can form an opinion respecting the condition of ancient Peru and Mexico, the only countries in America where the law affecting the relation of cheap food on civilization could be expected to operate. In these regions the warmth of the climate, by rendering life (mere living) easier, both as respects food and raiment, helps to encourage that which is in fact the real cause of the mischievous consequences we have described (for cheap food and easy living are not in themselves evils),—the too rapid growth of a population occupying an unchanging area, however large. So far as mere natural fertility and productiveness of soil were concerned, Brazil, in South America, and the southern and eastern parts of the United States in North America, were far in advance of Peru and Mexico; but the fertility and productiveness of those regions were in excess of what man in past ages could effectively deal with. Nature there was overwhelmingly prolific. As Buckle remarks, "when the productive powers of nature are carried beyond a certain point, the imperfect knowledge of uncivilized man is unable to cope with them or in any way turn them to his own advantage." Civilization would, therefore, never begin in regions where nature is so full of life that we seem to feel, to hear, to see her growth. Only where the powers of nature, though active, are such as man, in the beginning of his attempts at civilization, can deal with and control, do we find that ancient civilizations began; there, only, would the wealth of nature help man to gather together the materials for that progress which we call civilization.

In Mexico and Peru, a substance, even cheaper and more prolific than rice or dates or potatoes, has been and is still one of the most important articles of food. Ixtlilxochitl, the Mexican historian, by his passing references to maize or Indian corn, shows that before the Spaniards arrived in Mexico it was in general use. If we can believe all that has been said of the growth of maize in Mexico proper, the yield must have always been far greater there than that of any other cereal the world over. Thus, whereas in California the average yield is, I believe, about eighty fold, it is said to be three or four hundred fold, and, under favorable conditions, even twice as great, in Mexico. Humboldt says, "The fecundity of Ilaolli, or Mexican maize, is beyond all we can imagine in Europe. The plant, favored by intense heat and great humidity, attains a height of from two to three *mètres* (say seven to ten feet)." He adds that, in the fine plains extending from San Juan del Rio to Queretaro, a yield of eight hundred fold is sometimes obtained (*Nouvelle Espagne*, vol. II., p. 374). The banana, however, both in Mexico and Peru, afforded an even cheaper and more abundant source of food. "I doubt," says Humboldt, "whether there exists another plant on the earth which in a small tract of land will produce so great a quantity of nourishing food." . . . The produce of the banana exceeds that of wheat one hundred and thirty-three times, that of potatoes forty-four times. This, of course, does not indicate the relative life-supporting powers of bananas, wheat, and potatoes. The produce of the three are related thus:—

Bananas : potatoes : wheat :: 133 : 3 : 1.

But equal quantities of bananas, potatoes, and wheat have unequal nutritive powers, and when due account is taken of the difference, we find that equal tracts of land sown (in suitable latitudes and soils) with bananas, potatoes, and wheat, have life-supporting powers proportioned thus:

Bananas : potatoes : wheat :: 25 : 2 : 1.

We might expect to find, then, that in ancient Mexico and Peru the effects we have been led to attribute to great cheapness and abundance of food, with resulting diminished struggle for mere existence, and consequent over-productiveness of the human race, would be found in even more marked degree than in Asia and Egypt. We might expect that wages would be exceedingly low, and the laboring population reduced to a very degraded condition, while the upper class (for in these cases there are seldom lower and upper classes, but simply an upper class and a lower one) wealthy, luxurious, and despotic.

Yet, even with the anticipations which we might be led to form from what we have already seen of the effects of over-population, we could hardly conceive that a people would ever have been so utterly degraded as the Peruvians and the Mexicans of the lower class seem to have been. On the one hand, we find a class possessing practically unlimited wealth, which they expended, or rather wasted, with incredible prodigality and ostentation. On the other we find a class absolutely without possessions, yet, by a strange irony of fate, the sole tax-payers. "The members of the royal house," says Prescott in his history of Peru (vol. I., p. 56), "the great nobles, even the public functionaries, and the numerous body of the priesthood, were all exempt from taxation; the whole duty of defraying the expenses of the Government belonged to the people."* It was the same in Mexico. "The inferior folk," says Larenaudière in his "Mexique," "who possessed no property and had no commerce, paid their respective shares of the taxes in work of different kinds; by them the crown-lands were tilled, public works were carried on, and the various houses belonging to the emperor were built and furnished.

So utterly sunk were the Peruvians and Mexicans below the level which in our time is regarded as the lowest to which man can be degraded, that they had not even so much of independence as all but the worst slave-owners allowed their negro slaves in former times. "They had nothing," says Prescott, "that deserved to be called property. They could follow no craft, engage in no labor, no amusement, but such as was specially provided by law. They could not change their residence or their dress without a license from the Government. They could not even exercise the freedom which is conceded to the most abject in other countries,—that of selecting their own wives." In Mexico a similar state of things prevailed: the lower class in Mexico being, if possible, even more degraded than the corresponding class in Peru.

It seems, then, at a first view, as if this broad, general lesson were taught—that where nature is most prolific and productive, in manageable degree, there will be on the one hand the earliest civilization, and on the other the greatest degradation of the greater number. In the process of evolution, by which nations are first formed, then developed, then destroyed, abundance and cheapness of food seem to be all-important factors, at first creative, then destructive—destructive, because the condition to which nations tend, when over-populated, is one encouraging destructive action from without, and causing dissolution by processes taking place within, even without external attacks. This condition is in fine one of unstable equilibrium. We recognize it in decaying nations; we recognize the opposite in nations which are growing and thriving.

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* Ondegardo tells us that they paid "with their persons" (paid tribute with personal travail only, for they had nothing else to pay with), "Solo el trabajo de las personas era el tributo que se dava, *porque ellos no poseian otra cosa.*"

Yet, in itself, the abundance of food (whether arising from the cheapness of food itself or from climatic conditions rendering small quantities of food sufficient for the wants of a people) is an advantage in the struggle for life which nations as well as individuals have to undergo. It is an advantage to a nation, because it is an advantage to the individual members of the nation. If the world were as some philanthropists would have it (but as, unfortunately, it is not, nor can be made),—a scene where all can find room, without struggle or disadvantage to any,—nothing would favor progress more than the easy acquisition of the means of subsistence, and the consequent encouragement of a rapid growth of population. To assert that this is really so; that these aims of philanthropy could be obtained with great and ever growing advantage to a nation or to the human race in general, is in fact as remote from the truth as it would be to assert that nothing can favor more the growth and strength of the individual man than the frequent consumption of large quantities of strength-sustaining food. In the very abundance of that, the natural function of which is to sustain life and strength, lie hid, in both cases, the seeds of weakness and dissolution.

The struggle for existence which we recognize so readily in considering the lives of the lower animals, is an all-potent factor in the progress of men and nations. If all men were sound reasoners and resolute to act as their reason taught them, whatever rendered the struggle for life easier would help to advance the race or nation which had the benefit of the difference. As matters actually are, the reverse holds, at least within ordinary limits. Where the conditions are such as in the arctic regions and in sterile lands, and where the destructive powers of nature are constantly in active operation, the struggle for existence is too severe for rapid progress—races of hardy but uncivilized men are generated under the action of these hostile natural forces; and among the conditions which thus oppose human progress, the scarcity of food, or the necessity for food not easily or abundantly obtainable, must be reckoned as not the least important. But, apart from conditions such as these (under which, when they supervene on more favorable circumstances, the best races of men have been known to rapidly degenerate), a sharp and active struggle for existence among its individual components is essential to the vigor and vitality of a nation. The reason underlying this is or should be sufficiently obvious. It may sound well to hear soft and pleasant things said of the human race, as if it were in some degree or altogether distinct from inferior races in this respect; but it is not the truth. Nature has provided for man,. as for the lowest of his competitors in the struggle for life, reproductive powers largely in excess of the requirements of life without struggle. It is absolutely essential, if life is to continue at all upon the earth, that many should die, or else that not all which might should come into existence; and it seems, so far as we can judge, to be essential, if any race or nation is to progress or even not to retrograde, that the actual contest for life should be a hard-fought one, and, therefore, that many should fall in the battle.

In dealing with this question, by the way, Darwin has referred to the increase of the population of the United States, as if it illustrated the possible natural increase of civilized populations under favorable conditions. At least he has compared it with the rate of natural increase which Euler showed to be possible, — six per cent. *per annum*, — nothing like which has ever been known, even during a single year. Of course the increase of the population of North America is quite outside all arguments relating to the natural increase possible in the human race. I do not know that in any part of the United States, even under the most favorable conditions, a natural increase of more than three per cent. per annum has ever been observed,—or indeed, that it has been possible anywhere to distinguish the natural increase from that which has arisen only from immigration or the shifting of population from one spot to another. Still there can be little doubt that even such an increase as has been observed in the United States, by which the population doubles in about twenty-five years, might occur naturally under favorable conditions. At this rate the present population of the United States, say, roughly, fifty millions, would cover the habitable part of North America,— say seven million square miles,— so thickly that four men would have to stand on each square yard of surface,—in little more than five hundred (more exactly, in five hundred and seventeen) years. In six hundred and seventeen years, a surface sixteen times as great would be covered as densely — or one hundred and twelve million square miles, which is much more than the entire land surface of the globe. In less than six hundred and forty years the whole surface of the terraqueous globe would be covered, four men to the square yard, from the present population of the United States alone, at the supposed rate of increase. But, apart from such an unusual rate of increase as this, if we take any such a rate as one and a half per cent. per annum, which is about the rate of natural increase in old and settled countries like England, it would take but one thousand one hundred and eighty-eight years,—a mere nothing in the history of the world,— to thus crowd the earth's surface, land and water, with the descendants of a present population of fifty millions. It is hardly necessary to say that in a much shorter time, at this perfectly normal rate of increase, the world would be utterly uninhabitable.

We perceive, then, what an important factor that must be, of which Darwin has remarked that it is the primary or fundamental check to the continued increase of man,— the difficulty of gaining subsistence and of living in comfort. We cannot wonder that the whole character of past civilizations, in the Old World and in the New, should have been affected by this potent cause,—that where the difficulty of gaining subsistence has been unduly small, other active means of destroying superabundant population should have come into existence, to replace that one which should be the primary force working to that end. In a country like the United States, where subsistence is easy, but where, also, there is plenty of room, we see very rapid growth and development. We may believe that, as Darwin says, if the means of subsistence were doubled in England (or, which would come to much the same thing, if people in England would be content with or could live in comfort on the cheap articles of food used in Asia and Africa), the population in England would be quickly doubled: and for a while the process of development in a nation undoubtedly gains by those causes which encourage an increase of population. But just as the development of the natural body is part of the progress toward death, and eventually leads to death; so that increase of population, by which a nation's first steps to power are determined, becomes (unless checked by the increasing difficulty of securing the means of living) part of the progress toward the nation's dissolution, and toward the surcease of its civilization.

If we consider what are the conditions as to the nature of food used and required, and the abundance of the supply, most favorable to the progress of a nation, we encounter at the outset this difficulty that the favorable conditions of one stage of a nation's history become unfavorable conditions in another. There can be no question, for instance, that the abundance and cheapness of food (of all, at any rate, which is essential for food) in the United States, are at present among the factors which encourage the development of the nation; the chief reason being, that America is still in the stage when labor can command good terms. It is unlikely, also, that, for many generations, America can suffer from over-population resulting from undue ease in the conditions under which the bulk of the people obtain sustenance. Yet that danger lurks in the background for America as it has for other nations. Or rather, we can recognize, and in no very remote future, a time when the means of subsistence will no longer be so much in excess of the actual wants of the people as they are at present,—when, therefore, the increase of population will no longer be so rapid, and the tendency to cheap labor, which would otherwise have arisen, will be checked by a hardening of the conditions under which the struggle for life has been carried on. We may recognize in several European nations the action of this safety-valve against unduly rapid development. In England especially this has been the case. The conditions under which the bulk of the people in England subsist, have never become and are never likely to become unduly easy. The natural increase of the English people is nevertheless too rapid, and it is only the outlet found in emigration which has saved England in great degree, as it has saved other European nations, in greater or less degree, from the miseries and degradations which arise from an overcrowded population. Where a similar outlet may be found for an excess of population, when that danger is threatened in America, does not yet appear. It may be that safeguards of other kinds may come into action before that danger supervenes. If man differs from the lower animals in this, that, with advancing civilization, an ever-increasing proportion of the race see the folly and wickedness of fighting, that more and more stringent and scientific (therefore more and more successful) measures are used for the prevention of pestilence and disease, and so forth, he differs also from the lower animals in having his passions not as instincts only (though they are that with him, as with all other animals), but under the control of reason. On the one hand, human reason has diminished, and is still further diminishing the action of those causes which correct the unduly rapid growth of population; on the other hand, human reason possesses (though hitherto it has not in the aggregate very fully used, or even absolutely recognized the full right to use) the power of preventing such unduly rapid growth. We may well hope that before the time comes when excessive population, for which no remedy can be found in emigration, threatens the great world-nation of the future, men will widely and clearly have recognized the duty of regulating, either by legal or individual restraints, the responsibilities of parentage. Many who differ from Mr. J. S. Mill, in considering that our present notions of liberty in this respect are "misplaced," in so far as they "prevent legal obligations from being imposed in this matter," must agree with him in recognizing moral obligations. As he well remarks, "the fact itself of causing the existence of a human being is one of the most responsible actions in the range of human life. To undertake this responsibility,—to bestow a life which may be either a curse or a blessing,—unless the being on whom it is to be bestowed will have at least the ordinary chances of a desirable existence, is a crime against that being; and in a country either over-peopled or threatened with being so, to produce children beyond a very small number, with the effect of reducing the reward of labor by their competition, is a very serious offense against all who live by the remuneration of their labor." I cannot myself agree with Mill in what he adds, that "the laws which, in many countries on the Continent, forbid marriage unless the parties can show that they have the means of supporting a family, do not exceed the legitimate powers of the state." I think they go far beyond any desirable interference on the part of the state with individual freedom of action, and that a people which would be the better for such interference, so far as material advantages are concerned, must be so degraded that the sooner they pass away or are absorbed by worthier races, the better for the world. I definitely and earnestly reject his doctrine that, "whether such laws be expedient or not, they are not objectionable as violations of liberty." It appears to me that if laws of that kind were permissible at all, the state might far more reasonably "forbid marriage unless the parties can show that," according to recognized laws of heredity, their offspring are reasonably likely to be strong, able, and worthy members of the body politic. But the vice of Mill's reasoning here, as in much of his writing on such matters, is the assumption that the state can advantageously undertake the duties which belong especially to individuals,—the persons who would have to supervise such matters being unlikely, on the average, to take greater care in the matter than those over whose conduct they would be appointed to watch. In a nation where the majority "cared for none of these things," the state could do nothing with advantage or without mischievous violations of liberty; where, on the other hand, the majority took as just a view on this subject as on more familiar moral obligations, state interference would be unnecessary.

Apart from the influence of moral restraints such as these, we should be compelled, by the evidence alike of antiquity and of our own age, to teach a doctrine precisely the reverse of that advanced by writers who measure progress by the rate of increase of population. "There is one mode," says Mr. Greg, in his "Enigmas of Life," "in which the amount of human existence sustainable on a given area, and, therefore, throughout the chief portion of the habitable globe, may be almost indefinitely increased—*i. e.*, by a substitution of vegetable for animal food. A given acreage of wheat will feed at least ten times as many men as the same acreage employed in growing mutton. It is usually calculated that the consumption of wheat by an adult is about one quarter per annum, and we know that good land produces four quarters. Let us even assume that a man living on grain would require two quarters a year; still, one acre would support two men. But a man living on meat would need three pounds a day, and it is considered a liberal calculation if an acre spent in grazing sheep and cattle yields in mutton or beef more than fifty pounds on an average—the best farmer in Norfolk having averaged ninety pounds; but a great majority of farmers in Great Britain only reach twenty pounds. On these data it would require twenty-two acres of pasture land to sustain one adult person living on meat. It is obvious that, in view of the adoption of vegetable diet, there lies the indication of a vast possible increase in the population sustainable on a given area."

Here, the question whether increase in the density of population (equally well sustained by food) is an unmixed good is not considered. Life may be more cheaply supported by such a change as Mr. Greg suggests; but if the life so supported is found to be cheaper—that is, more cheaply valued—more life may mean more misery. "Man does not live by bread alone," is true doctrine here. If the extra lives are looked on only for what they may be worth to the capitalist, or as so much food for the man of oppression, or to be consumed in war, it is worse than useless thus thoughtfully to provide for their mere existence. We have seen that in every case known, cheap food and resulting increase of population have meant such diversities in the social strata as must result, earlier or later, in destruction by displacements and upheavals within, or by inroads from without. If there be aught in modern civilization to save nations which become exposed to the same conditions and the same dangers as of old, it should be easy to point out where such safeguards lie. It would not be difficult to show, however, that just so far as modern nations approach, either in whole or in part, the conditions under which older nations perished, they show the signs of decrepitude and decay, which, unless checked, signify approaching dissolution. What does emigration mean but this? We look on complacently at this evidence of over-population and resulting destructive tendencies; but, as Dr. B. W. Richardson well remarks, "It is the fittest for work and for earning who leave our shores; the unfittest for work, the luxurious and the least powerful, remain. Thus the drain on the first processes of national permanent prosperity is that which is opened by emigration,—is that which is exhausting the heart of the commonwealth." And he offers as a remedy the cheapening of food, as if the best part of our general population left the shores of Britain solely because food is dear. They leave, not because food is dear, but because labor is cheap; and the cheaper the food the worse the evil will become, for labor will become cheaper too. When emigration becomes no longer possible, when this safety-valve is closed,—as it will be within a period very short, indeed, compared with the periods by which men measure history,—the consequences observed among the nations of old may affect—on a wider scale—the civilization of the future. Room for more may be found by the cheapening of food,—that is, by the use of cheaper food,—and amiable enthusiasts may find here and thus a remedy for the threatened evils. They can at least show that at present even the most populous countries in the Old World are not over-peopled; for, undoubtedly, with due care, and with choice of the cheapest forms of food, twice as many per square mile might exist even in Belgium than at present. But those who consider the dignity of man, as well as his mere numbers on the globe—those who study the evidence afforded by the wide, though unconscious, experiments made by nations in past ages—will entertain a different idea as to the way in which the great life problem should be viewed. Mere increase of population—even though all be supported in health and vigor—is not all that the human race has to look forward to; it may be doubted whether it is worth hoping for in itself, under any conditions: but, assuredly, if along with such increase there should come, as of old, the degradation of the many under the tyranny and oppression of the few, the change which enthusiasts regard so hopefully is one most devoutly to be deprecated.

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